

What Is Claimed Is:

1. A portable multi-voltage solar cell charger comprising:
at least one solar cell plate holding a plurality of solar cells which are molded
5 and arranged in series/parallel;
a film formed on the solar cell plate, the film having a reformed surface to
reduce reflection of sunlight;
a power control part supplying a load side with power generated from the
solar cells after automatically perceiving a voltage required from the load side;
10 and
a case holding the solar cell plate and the power control part, the case
combining at least one portable electronic device with a charging device.
2. The portable multi-voltage solar cell charger as defined by claim 1,
15 wherein the solar cells are molded by using a heat resistant polymer, EVA resin.
3. The portable multi-voltage solar cell charger as defined by claim 1,
wherein the film formed on the solar cell plate is polymer resin.
- 20 4. The portable multi-voltage solar cell charger as defined by claim 1,
wherein the film formed on the solar cell plate is treated so that the surface is
covered with small pyramid-shaped prominences.
5. The portable multi-voltage solar cell charger as defined by claim 1,
25 wherein the film formed on the solar cell plate is treated so that the surface is

covered with small inverted pyramid-shaped prominences.

6. The portable multi-voltage solar cell charger as defined by claim 1,
wherein the film formed on the surface of the solar cell plate is treated so that the
5 surface becomes rough as corroded.

7. The portable multi-voltage solar cell charger as defined by claim 1,
wherein the power control part comprises a step-up switching regulator, a step-
down switching regulator, and a control circuit.

10

8. The portable multi-voltage solar cell charger as defined by claim 7,
wherein the step-up switching regulator comprises an n-channel FET (T1), an
inductor (L1), and an electrolytic condenser (C1).

15 9. The portable multi-voltage solar cell charger as defined by claim 7,
wherein the step-down switching regulator comprises a p-channel FET (T2), an
inductor (L2), and an electrolytic condenser (C2).

10. The portable multi-voltage solar cell charger as defined by claim 7,
20 wherein the control circuit comprises:

an A/D converter perceiving a voltage required from the load side and
converting the perceived voltage into a digital value;

a microprocessor determining the voltage required from the load side using
the digital value;

25 a D/A converter converting the voltage determined from the microprocessor

into an analog value;

a comparator comparing the analog value from the D/A converter with an output from the solar cell plate; and

an AND gate integrating a signal from the comparator and a signal from a pulse generator and adjusting the output from the solar cell plate.

10

11. The portable multi-voltage solar cell charger as defined by claim 1, wherein the case comprises a gutter member on which a wire connected to a output terminal of the power control part is wound and stored.

12. The portable multi-voltage solar cell charger as defined by claim 11, wherein the gutter member comprises a disc and is formed so as to be replaced.

15

13. The portable multi-voltage solar cell charger as defined by claim 12, further comprising a fixing socket in which a connecting member of the wire wound on the gutter member is fitted.

20

14. The portable multi-voltage solar cell charger as defined by claim 12, further comprising two copper plates formed at an interval of 90° on the inside of the case which is in contact with the gutter member so that polarities are changed by rotating the gutter member with an angle of 90° .

25

15. The portable multi-voltage solar cell charger as defined by claim 1, further comprising a support formed on the back of the case, the support erecting the solar cell plate so that the solar cell plate is directed to incoming light for

charging, the support being formed into a tweezer type so that charging is performed during movement.

16. The portable multi-voltage solar cell charger as defined by claim 1,
5 wherein the case has a structure selected from the group of one fold, two folds, three folds, four folds, etc.

17. The portable multi-voltage solar cell charger as defined by claim 1, further comprising a holding member formed on one side of the inside of the case around
10 the solar cell plate, wherein the holding member is made of a magnet.

18. The portable multi-voltage solar cell charger as defined by claim 1, wherein a connecting member is formed on one end of the wire coupled with the portable solar cell charger, the connecting member being formed of a male screw
15 type on the center of which a hole is formed.

19. The portable multi-voltage solar cell charger as defined by claim 18, wherein the connecting member of a male screw type is combined with one end of a second connecting part of a female screw type on the center of which a
20 protrusion is formed.

20. The portable multi-voltage solar cell charger as defined by claim 19, wherein the other end of the second connecting part is formed so as to have a structure suitable for an electronic device to be charged.

21. The portable multi-voltage solar cell charger as defined by claim 1, further comprising a cover formed on the back of the portable solar cell charger, the cover enclosing the gutter member and being used as a support.

5 22. The portable multi-voltage solar cell charger as defined by claim 21, further comprising a stopper formed on one end of the cover, the stopper being used to support and attach the solar cell charger to another object.

10 23. A method of charging an electronic device using a portable solar cell charger, comprising:

perceiving a voltage required from a load side on a microprocessor by converting the voltage using an A/D converter;

15 converting the perceived voltage into a corresponding voltage using a D/A converter and comparing the converted voltage with a voltage from a solar cell plate using a comparator;

integrating a signal from the comparator and a signal from a pulse generator using an AND gate and adjusting the voltage from the solar cell plate based on the integrated signal; and

20 supplying a voltage from the solar cell plate into the load side according to the adjusted voltage.